What is claimed is:

[Claim 1] A method for compression of sonic log data, comprising:

sorting peak components in the sonic log data;
filtering the sorted peak components to remove high-frequency portions in the peak components; and
decimating the filtered peak components according to a selected ratio to produce compressed data.

[Claim 2] The method of claim 1, wherein sorting the peak components comprises sorting for compressive wave (P-wave), shear wave (S-wave), and Stoneley wave (St-wave) components.

[Claim 3] The method of claim 2, wherein sorting comprises sorting for the P-wave component, the S-wave component, and the St-wave component in a sequential order.

[Claim 4] The method of claim 1, wherein sorting involves rules based on expected slowness ranges for the peak components.

[Claim 5] The method of claim 1, wherein sorting the peak components comprises correcting peak spikes due to noise in the sonic log data.

[Claim 6] The method of claim 1, wherein filtering uses a low pass filter.

[Claim 7] The method of claim 6, wherein the low pass filter is selected to cut off a top 75% frequency in the sorted peak components.

[Claim 8] The method of claim 7, wherein the selected ratio is four to one.

[Claim 9] The method of claim 1, wherein the sorting, the filtering, and the decimating are performed in a downhole tool.

[Claim 10] The method of claim 9, further comprising sending the compressed data uphole via telemetry.

[Claim 11] The method of claim 10, wherein sending the compressed data uphole comprises encoding the compressed data.

[Claim 12] The method of claim 9, wherein the telemetry comprises mud telemetry.

[Claim 13] A method for telemetry transmission of downhole sonic log data, comprising:

sorting peak components in the sonic log data;
compressing the sorted peak components to produce compressed data;
packing the compressed data to produce data packets for telemetry transmission; and
sending the data packets where desired using telemetry.

[Claim 14] The method of claim 13, wherein sorting the peak components comprises sorting for compressive wave (P-wave), shear wave (S-wave), and Stoneley wave (St-wave) components.

[Claim 15] The method of claim 14, wherein sorting comprises sorting for the P-wave component, the S-wave component, and the St-wave component in sequential order.

[Claim 16] The method of claim 13, wherein sorting involves rules based on expected slowness ranges for the peak components.

[Claim 17] The method of claim 13, wherein sorting the peak components comprises correcting peak spikes due to noise in the sonic log data.

[Claim 18] The method of claim 13, wherein compressing comprises:

filtering the sorted peak components using a low pass filter; and
decimating the filtered sorted peak components according to a selected ratio.

[Claim 19] The method of claim 18, wherein the low pass filter is selected to cut off a top 75% frequency in the sorted peak components.

[Claim 20] The method of claim 19, wherein the selected ratio is four to one.

[Claim 21] The method of claim 13, further comprising unpacking the data packets to regenerate the compressed data; and decompressing the regenerated compressed data to reconstruct the peak components.

[Claim 22] The method of claim 21, wherein decompressing comprises interpolating the regenerated compressed data.

[Claim 23] A system for compressing sonic log data, comprising a processor and memory means, wherein the memory stores a program having instructions for:

sorting peak components in the sonic log data;
filtering the sorted peak components to remove high-frequency portions in the peak components; and
decimating the filtered peak components according to a selected ratio to produce compressed data.

[Claim 24] The system of claim 23, wherein sorting the peak components comprises sorting for compressive wave (P-wave), shear wave (S-wave), and Stoneley wave (St-wave) components.

[Claim 25] The system of claim 24, wherein sorting comprises sorting for the P-wave component, the S-wave component, and the St-wave component in sequential order.

[Claim 26] The system of claim 23, wherein sorting involves rules based on expected slowness ranges for the peak components.

[Claim 27] The method of claim 23, wherein sorting the peak components comprises correcting peak spikes due to noise in the data.

[Claim 28] The system of claim 23, wherein the filtering uses a low pass filter.

[Claim 29] The system of claim 28, wherein the low pass filter is selected to cut off a top 75% frequency in the sorted peak components.

[Claim 30] The system of claim 29, wherein the selected ratio is four to one.